

REMARKS

Claims 3 and 6-23 are pending in the subject application with entry of this paper.

Please cancel Claims 1-2 and 4-5 without prejudice.

Applicant acknowledges the indicated allowability of Claim 23.

Claims 3 and 6-22 stand rejected.

Rejection under 35 U.S.C. § 102(b)

At paragraph 3 of the Action, the Office rejected Claims 1-2 and 4-5 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,465,289 to Kennedy. Applicant has cancelled Claims 1-2 and 4-5 without prejudice. Withdrawal of the rejection is respectfully submitted.

Rejections under 35 U.S.C. § 103(a)

At paragraph 5 of the Action, the Office improperly rejected Claims 3 and 6-22 under 35 U.S.C. § 103(a) as being unpatentable over Kennedy in view of U.S. Patent No. 6,295,455 to Fischer. Applicant submits that Kennedy in view of Fischer fails to provide a *prima facie* case of obviousness, and Applicant respectfully requests withdrawal of the rejection under § 103(a).

1. **Background**

Independent Claims 3, 6, 9, 17 and 19 each require a wireless communications system including or having a sparse deployment of wireless location sensors (see paragraphs [0013]-[0015] of the published application) where one effect of a sparse network deployment is the occurrence of “no location areas”. These “no location areas” are those areas in which a minimum number of WLSs cannot detect or measure an

attribute of a signal such that the respective geolocation system cannot estimate a location of the mobile appliance. As the Office is aware, mobile appliances are power controlled by a wireless network. Therefore, when a mobile appliance moves close to a base station site, the required transmit power for an acceptable communications link is reduced to a small value. In the event that the base station serving the mobile appliance does not have a WLS (due to the sparse deployment), then there is no WLS to "hear" the mobile appliance at the serving site, and the neighboring site WLS units may not be able to hear the mobile appliance because of the low transmit power of the mobile appliance. Therefore, neighboring WLSs may be informed of the existence of signals from the mobile appliance and the location thereof determined from these signals.

In contrast, the primary reference Kennedy provides no disclosure of either this "no location area" phenomenon or the relationship between neighboring WLSs and serving base stations, namely, informing neighboring WLSs of the existence of signals from the mobile appliance and determining a location therefrom. Rather, Kennedy discloses a system and method for monitoring traffic conditions by monitoring RF signals transmitted by mobile appliances over the control and voice channels of a cellular telephone network by traffic sensors placed in the network. These signals are decoded and processed to extract information such as the number of call initiations, calls in process, cell handoffs, and geolocation of mobile units within a particular cell area. A central processing unit performs statistical analysis of the data to determine whether the traffic conditions within a particular area are normal for the existing time of day and generate a report of the traffic conditions. Kennedy, however, is silent with regard to informing neighboring WLSs of

the existence of signals from the mobile appliance and the determining the location of the mobile appliance from these signals. Reconsideration and withdrawal of the rejection of Claims 3 and 6-22 for at least this reason is respectfully requested.

2. Fischer

The Office improperly utilizes Fischer to supplement the deficiencies of Kennedy. For example, the Office improperly utilizes Fischer to teach at least the following elements of Applicant's independent claims:

Claim 3 – “performing ambiguity function processing using known data sequences in the signal and the signal received at the another wireless location sensor;
measuring an attribute of the signal at the another wireless location sensor; and,
estimating the location of the mobile appliance based at least in part by measured attribute.”

Claim 6 – “performing ambiguity function processing using known data sequences in the target signal and the received target signal.”

Claim 9 – “selecting one or more location surfaces determined as a function of one or more in the group comprising a timing advance of the signal, a relationship between the transmitted power of the signal and the received power of the signal, the speed of the mobile appliance and, a second signal transmitted to the mobile appliance in a frequency band different from the signal, and enhanced observed time difference (EOTD) data; and,

estimating the location of the mobile appliance based on the measured attribute of the signal and the one or more location surfaces.”

Claim 17 – “wherein a geographic area served by the wireless communication system has a no location area, a method of determining the location of a mobile appliance comprising: determining if the mobile appliance is in the no location area, and;

using enhanced observed time difference (EOTD) to estimate the location of the mobile appliance.”

Claim 19 – “obtaining a set of candidate measurement data selected from the group of signal strength, timing advance, cell site hearability, sector hearability, adjacent cell site power measurements, multi-path signature and time of arrival (TOA) measurements;

comparing the set of candidate measurement data with a set of predetermined measurement data; and,

determining the location of the mobile appliance based on the comparison.”

In contrast, Fischer is directed to a conventional location system employing a method for enhancing uplink signal-based location methods by transmitting special position measuring data over an idle traffic channel during a call set up or similar operation while a subscriber is waiting. *See Fischer*, 3:15-23. Fischer discloses that “the present invention provides several different methods and arrangements that allow for special position measuring data sequences to be uplink transmitted by MS 12 to LMUs 15a-k (and BTSs 14a-n), during a call set up operation and/or during a completed call connection. The position measuring data is transmitted at specific times and in specific ways, such that the subscriber is substantially unaware that a mobile location process is even occurring.” *See Fischer*, 7:51-59. Upon transmission of this special position measuring data, the geographical location of a mobile appliance may be determined as a function of time of arrival (TOA), angle of arrival (AOA), signal strength, etc., of the special position measuring data. *See Fischer*, 5:38-46 and 8:2-9.

Fischer further clarifies the disclosed invention in Figure 2 as steps 102 (initialize call set up), 104 (BSC allocates traffic channel (“TCH”)) and 108 (complete connection) are considered prior art. “In a typical mobile telecommunications network, step 108 would follow step 104.” *See Fischer*, Fig. 2, 8:66-67. The invention of Fischer, however,

provides an additional step 106 between steps 104 and 108. "In step 106, MS 12 transmits position measuring data over the newly allocated and relatively idle TCH. For example, position measuring data is uplink transmitted within a burst 54 (or 60) of data transmitted during a time slot 52 of a time division multiple access (TDMA) frame 50 (see FIG. 1)."

See Fischer, 9:7-14.

Fischer clearly provides a disclosure of determining the location of a mobile appliance. However, the methods utilized by Fischer are conventional techniques (*e.g.*, TOA, AOA, signal strength) and the disclosure of such conventional techniques does not provide a *prima facie* case of obviousness for the claim elements of Claims 3, 6, 9, 17 and 19 recited above. For example, the Office cited the following portions of Fischer, the abstract, Col. 5, lines 35-56, Col. 6, lines 11-37, Col. 6, line 62-Col. 7, line 11, Col. 7, line 65-Col. 8, line 15, Col. 9, lines 15-29, Col. 10, lines 16-39, and Col. 10, line 40-Col. 11, line 36 for each of the recited elements above for Claims 3, 6, 9, 17 and 19. None of these portions (or any part of Fischer) recites or teaches any type of ambiguity function processing or estimating the location of a mobile appliance as a function of this processing (independent Claims 3 and 6). Further, none of the recited portions or any portion of

Fischer teaches or discloses:

"selecting one or more location surfaces determined as a function of one or more in the group comprising a timing advance of the signal, a relationship between the transmitted power of the signal and the received power of the signal, the speed of the mobile appliance and, a second signal transmitted to the mobile appliance in a frequency band different from the signal, and enhanced observed time difference (EOTD) data and estimating the location of the mobile appliance based on the measured attribute of the signal and the one or more location surfaces" (see independent Claim 9)

or

“obtaining a set of candidate measurement data selected from the group of signal strength, timing advance, cell site hearability, sector hearability, adjacent cell site power measurements, multi-path signature and time of arrival (TOA) measurements...comparing the set of candidate measurement data with a set of predetermined measurement data; and, determining the location of the mobile appliance based on the comparison” (see independent Claim 19).

Fischer’s mere teaching of determining the geographical location of a mobile appliance as a function of time of arrival (TOA), angle of arrival (AOA), or signal strength of special position measuring data is insufficient to provide a *prima facie* case of obviousness with regard to Applicant’s claimed subject matter of independent Claims 3, 6, 9 and 19 under 35 U.S.C. § 103(a).

Further, referencing the elements of Claim 17 recited above, Fischer is silent with regard to determining whether a mobile appliance is in a no location area, and using enhanced observed time difference (EOTD) to estimate the location of the mobile appliance. Similar to Kennedy, Fischer is also silent with regard to the phenomenon identified above as a “no location area” or how to locate a mobile appliance in a “no location area”. Certainly, Fischer discloses different location techniques by utilizing TOA, AOA and signal strength, but such a disclosure is insufficient to provide a *prima facie* case of obviousness of Applicant’s claimed subject matter in independent Claim 17 under 35 U.S.C. § 103(a).

Reconsideration and withdrawal of the rejection of independent Claims 3, 6, 9, 17 and 19 are respectfully requested. Claims 2-5, 7-8, 10-16, 18 and 20-22 are dependent upon independent Claims 3, 6, 9, 17 and 19. Independent Claims 3, 6, 9, 17 and 19 are in condition for allowance. By virtue of their dependency and without regard for the

additional patentable elements contained therein, reconsideration and withdrawal of the rejection of Claims 2-5, 7-8, 10-16, 18 and 20-22 are hereby solicited.

CONCLUSION

Applicant believes that the present application is in condition for allowance and, as such, it is earnestly requested that Claims 3 and 6-23 be allowed to issue in a U.S. Patent.

If the Examiner believes that an in-person or telephonic interview with the Applicant's representatives will expedite the prosecution of the subject patent application, the Examiner is invited to contact the undersigned agents of record.

The Office is requested and hereby authorized to charge the appropriate extension-of-time fees against **Deposit Account No. 04-1679** to Duane Morris LLP.

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